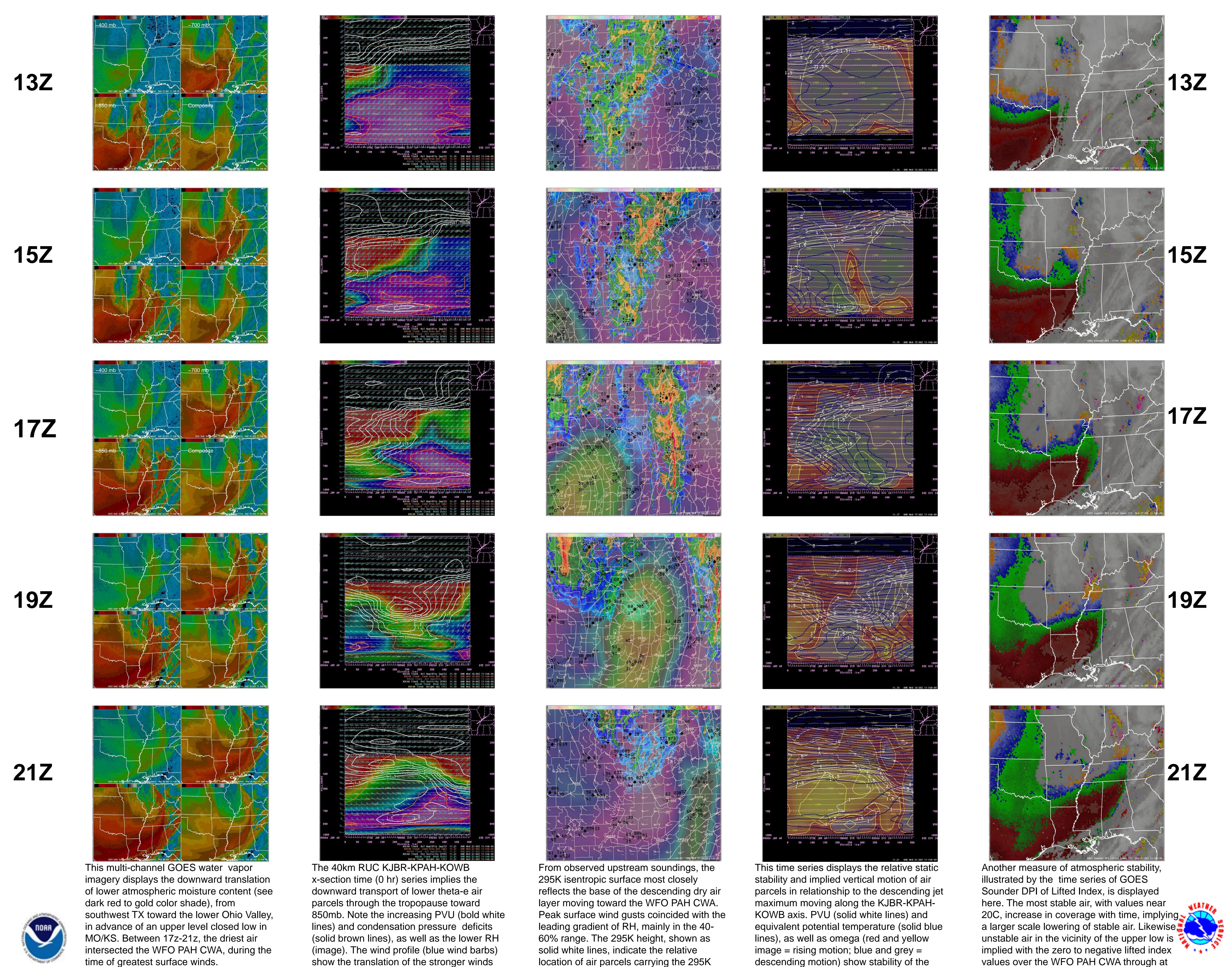
THE METEOROLOGY AND IMPACT OF THE 11 FEBRUARY 2009 WIND STORM IN THE LOWER OHIO VALLEY



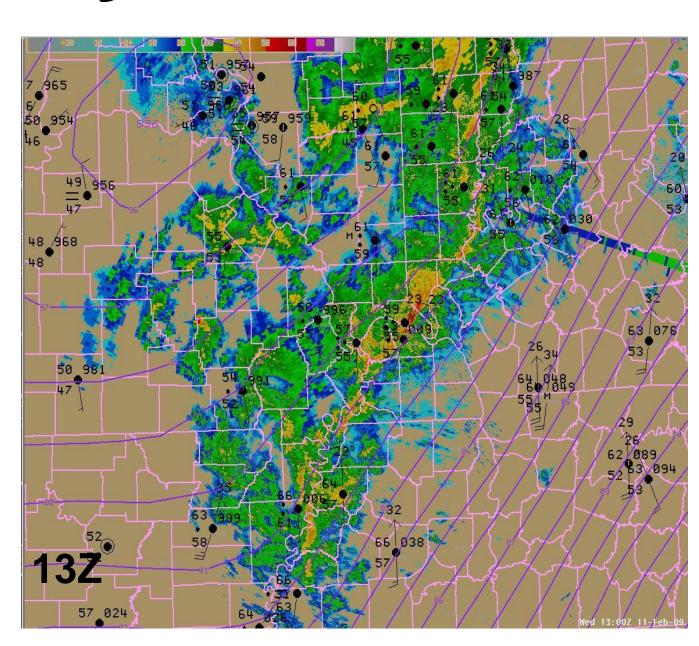
winds toward the surface.

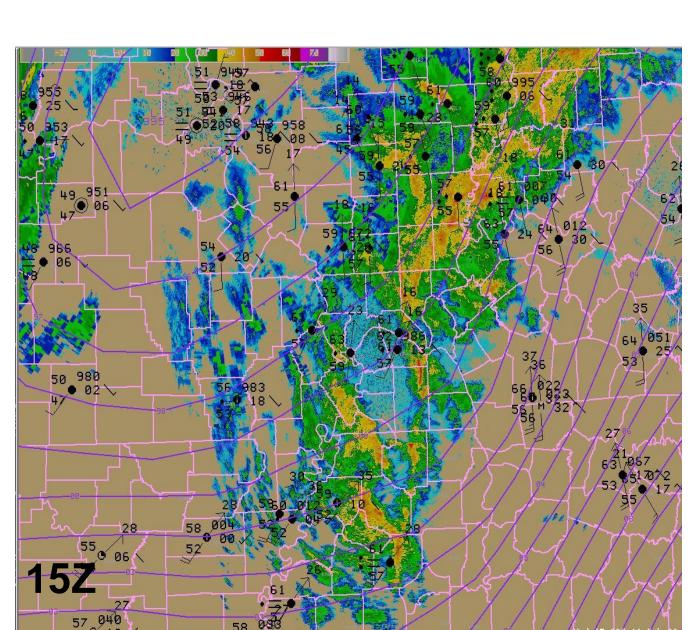
toward the surface.

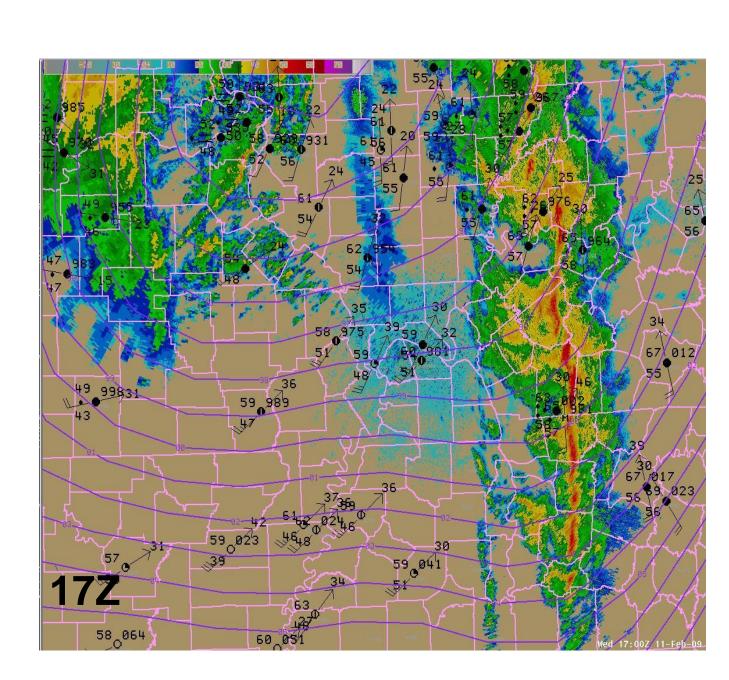
descending parcels toward the surface.

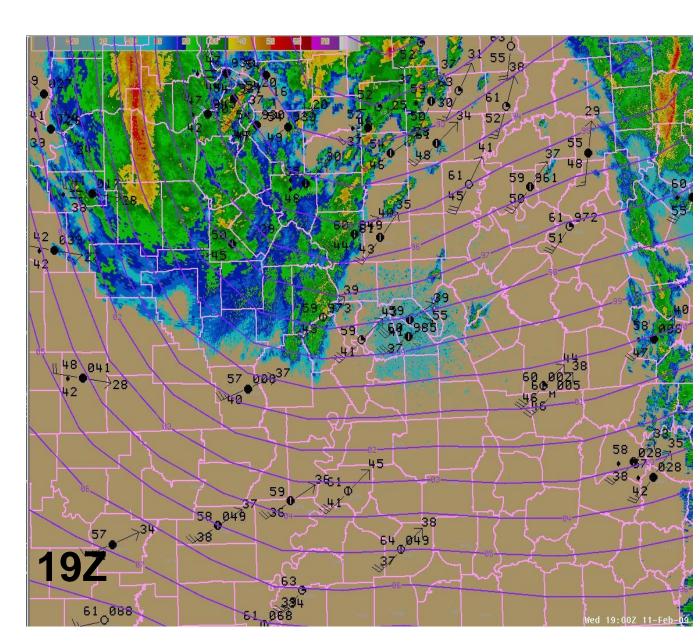
least 19z.

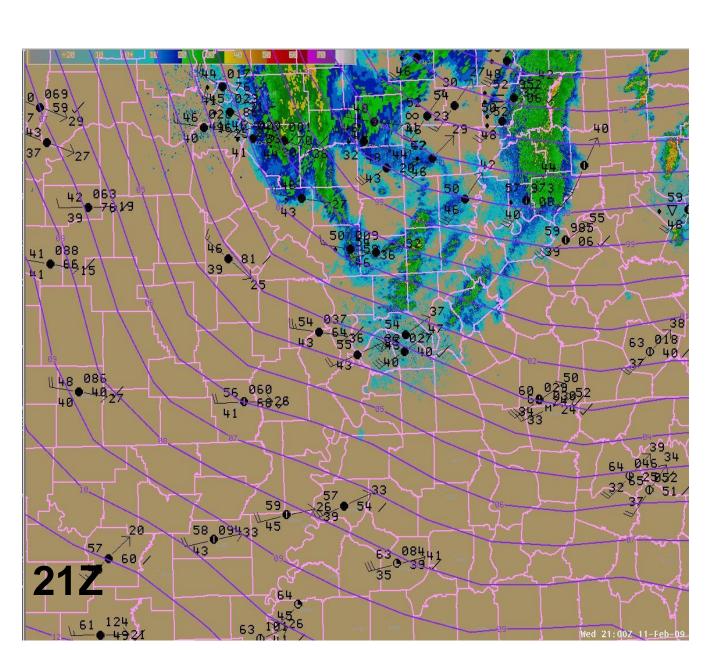
By: Kevin E. Smith, Daniel Spaeth, Patrick J. Spoden, and Christine Wielgos



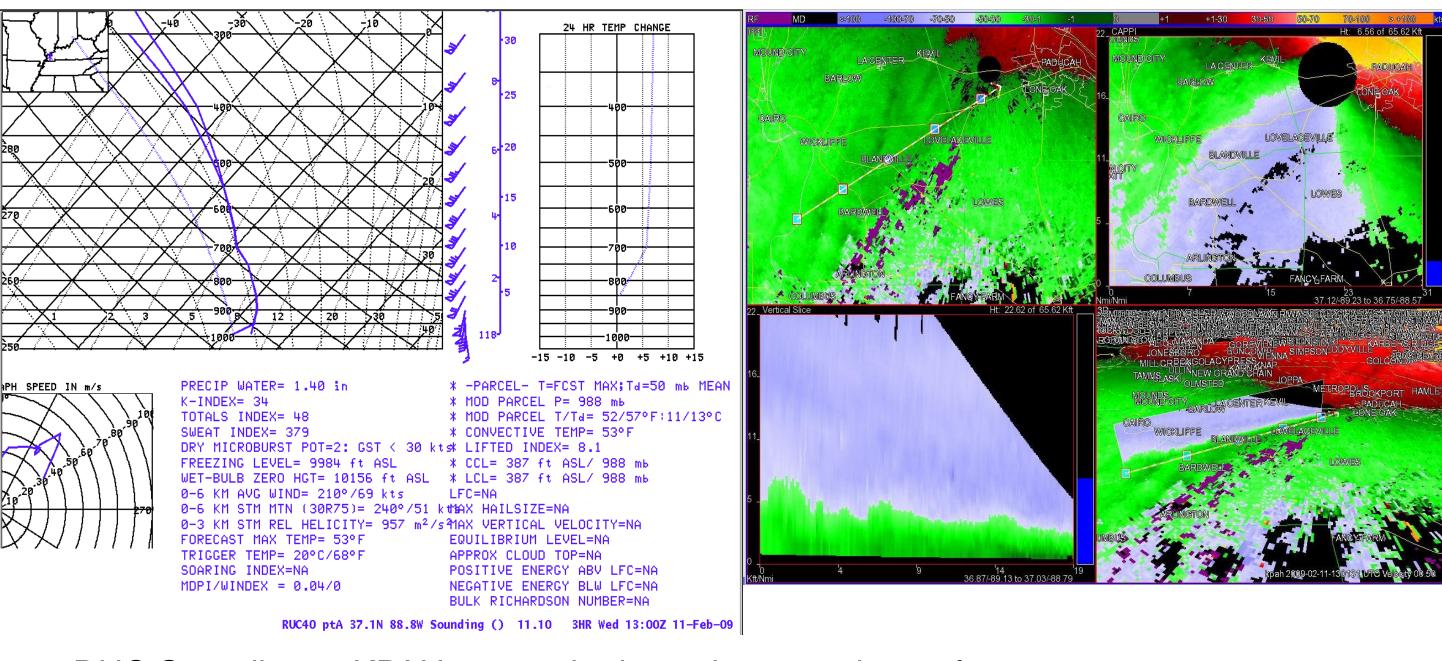








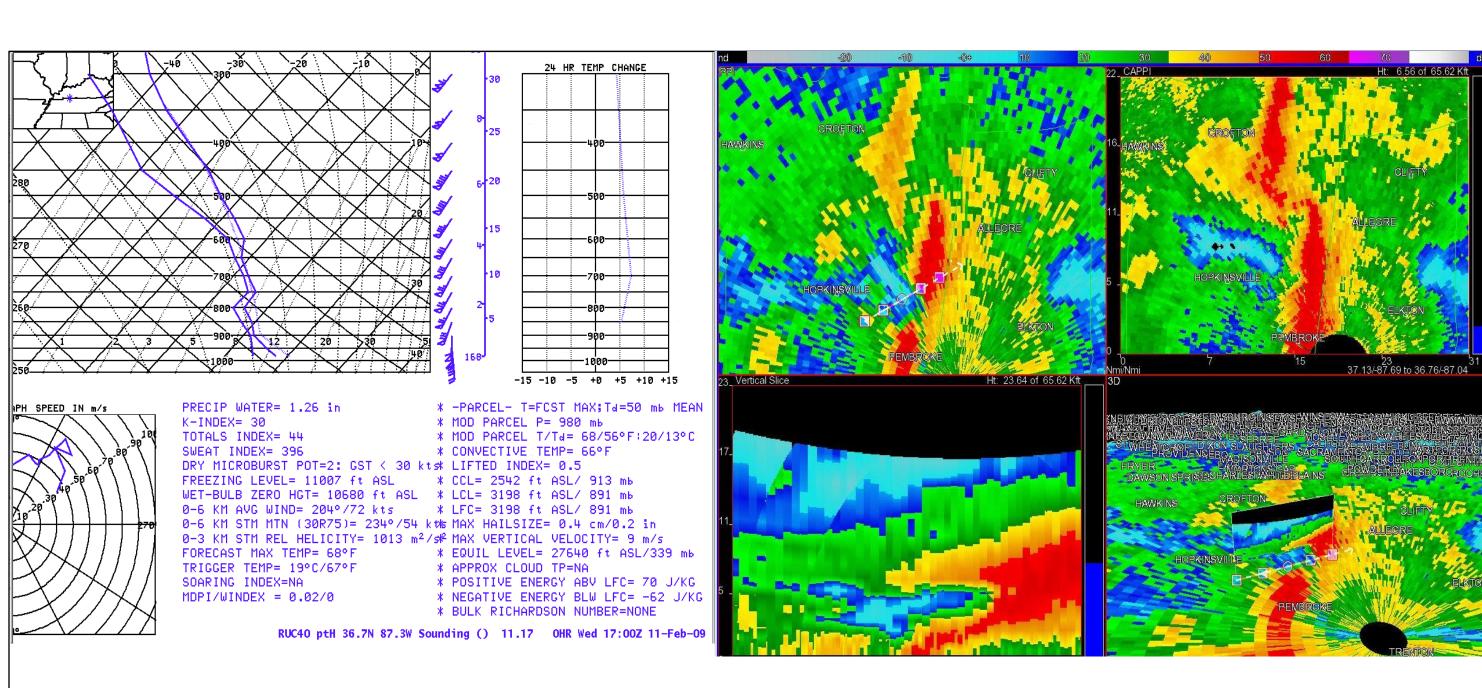
The surface pressure gradient remained sharp during the entire event. Surface winds reached or exceeded NWS warning criteria in the 17-21z time frame, as the descending jet intensified the ageostrophic pressure/wind gradient. Convective downdrafts, enhanced by the descending air, further aided in the translation of strong winds to the surface.



13z RUC Sounding at KPAH – note the inversion near the surface.

FSI Display (centered SW of KPAH) – note the dramatic change in wind speeds below vs. above the inversion.

36.76N 90.41W



17z RUC Sounding near Honey Grove, KY – note the erosion of the surface inversion. The lower left quadrant of 4-panel FSI display suggests dry air (elongated zone of lowered (<10 dBZ) reflectivity) entraining into the rear inflow jet of the QLCS (Quasi-Linear Convective System).

1155 AM NON-TSTM WND GST HARRISBURG 37.00N 89.18W IL AWOS 1248 PM NON-TSTM WND GST PADUCAH 37.07N 88.64W

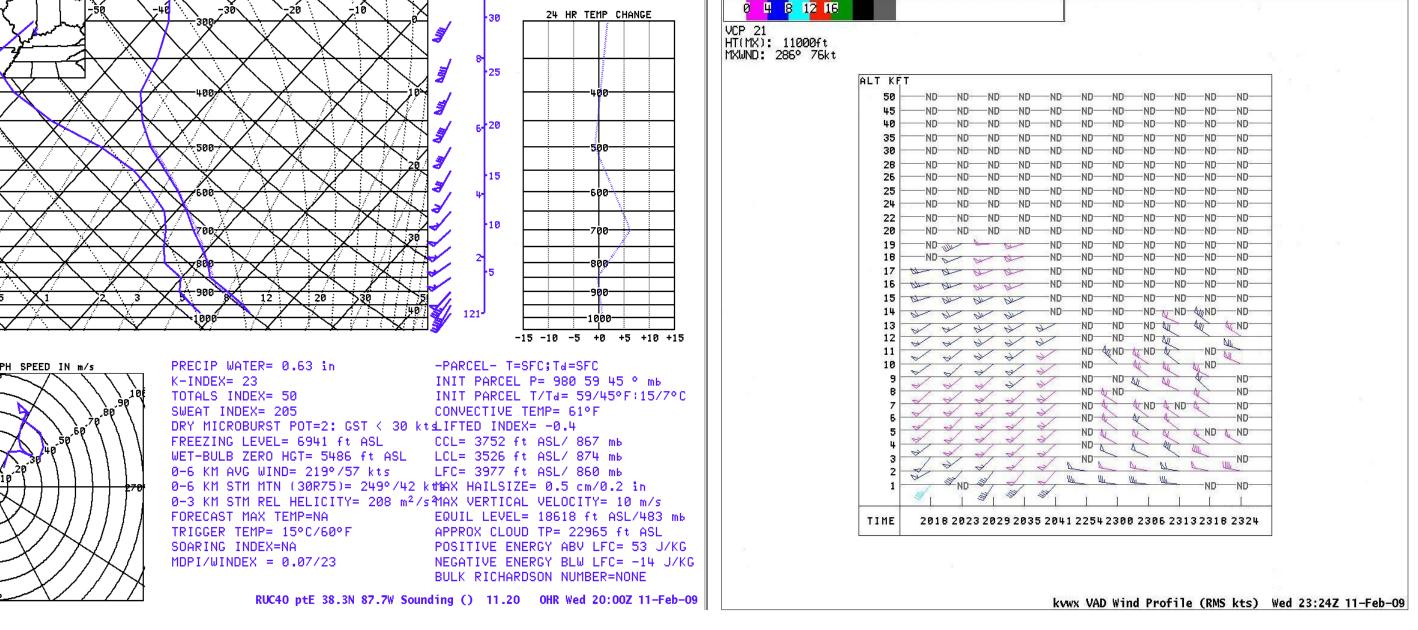
0155 PM NON-TSTM WND GST 4 S MADISONVILLE 37.28N 87.51W 02/11/2009 M63.00 MPH HOPKINS RECORDED BY KENTUCKY MESONET.

0201 PM NON-TSTM WND GST OWENSBORO 37.76N 87.12W 02/11/2009 M73.00 MPH DAVIESS

MISSISSIPPI MO EMERGENCY MNGR NUMEROUS ELECTICAL POLES FALLING COUNTYWIDE. 36.61N 88.32W KY BROADCAST MEDIA RECORDED ON FINE ARTS BUILDING AT MURRAY STATE. 8 STORIES ABOVE THE GROUND.

37.11N 87.88W KY LAW ENFORCEMENT MOBILE HOME BLOWN OVER

02/11/2009 M62.00 MPH CHRISTIAN KY DEPT OF HIGHWAYS REPORTED BY KENTUCKY MESONET.



20z RUC sounding near Owensville, IN – note the absence of an inversion and the introduction of drier air at lower levels.

KVWX VWP Display - This radar wind profile, centered near 21Z, depicts strong winds descending in the preceding 20 min. before reaching the KVWX RDA site. Severe or near severe wind gusts were reported both up and downstream of KVWX within minutes of the loss of data from the KVWX radar.

0301 PM NON-TSTM WND GST NEWBURGH 02/11/2009 M45.00 MPH WARRICK IN TRAINED SPOTTER 0329 PM NON-TSTM WND DMG HOPKINSVILLE 36.85N 87.49W KY TRAINED SPOTTER

SECTIONS OF METAL SIDING ON THE PENNYRILE MALL BLOWN

0331 PM NON-TSTM WND DMG CADIZ 36.87N 87.82W KY EMERGENCY MNGR 02/11/2009 A FEW BUILDINGS HAVE MISSING ROOFS. TREES AND POWER LINES DOWN. WIND SPEED ESTIMATED AT 60 MPH. 0405 PM NON-TSTM WND GST 3 N HOPKINSVILLE 36.90N 87.49W

02/11/2009 E57 MPH CHRISTIAN KY MESONET

HAZARDOUS WEATHER OUTLOOK Issued 343 PM CST FRI FEB 6 2009

.DAYS TWO THROUGH SEVEN...SATURDAY THROUGH THURSDAY **GUSTY SOUTHWEST WINDS 15 TO 25 MPH WILL POSE A HAZARD ON** SATURDAYAS LOOSE HANGING LIMBS FROM ICE STORM DAMAGED TREES MAY BE BLOWN DOWN. THE WINDS WILL MAKE DRIVING CONDITIONS MORE DIFFICULT AS WELL...PARTICULARLY FOR HIGHER PROFILE VEHICLES.

PERIODS OF THUNDERSTORMS ARE FORECAST MONDAY THROUGH WEDNESDAY. THE PRESENCE OF TREE DEBRIS FROM THE RECENT ICE STORM MAY ELEVATE THE RISK FOR LOCALIZED FLOODING IN HEAVIER DOWNPOURS. STRONG GUSTY WINDS MAY LOOSEN TREE BRANCHES ALREADY WEAKENED BY THE RECENT ICE STORM. THERE IS SOME POTENTIAL FOR SEVERE WEATHER AS WELL...ESPECIALLY ON WEDNESDAY.

.SPOTTER INFORMATION STATEMENT.. SPOTTER ACTIVATION IS NOT ANTICIPATED THROUGH THE WEEKEND.

HIGH WIND WATCH

Issued 1250 AM CST TUE FEB 10 2009

SOUTH WINDS WILL CONTINUE TO CRANK UP AS A STORM SYSTEM MOVES IN LATE TONIGHT AND WEDNESDAY. MEAN SUSTAINED WIND SPEEDS COULD HIT 40 MPH AT TIMES WHILE GUSTS COULD HIT 58 MPH OR BETTER. THIS IS A POWERFUL STORM SYSTEM APPROACHING AND HIGH WINDS WILL OCCUR. THEY WILL BE OUT OF THE SOUTH FOR MOST OF THE TIME...THEN TURN TO THE WEST AND DIMINISH WEDNESDAY NIGHT AS THE SYSTEM DEPARTS.

WINDS OF THIS MAGNITUDE PACK THE POTENTIAL FOR WIDESPREAD LOOSENED BRANCHES FROM RECENTLY ICE STORM DAMAGED TREES...WHICH IN TURN COULD DOWN POWER LINES. ANYONE OUTDOORS WILL BE AFFECTED BY HIGH WINDS...AND TRAVELERS WILL FIND NAVIGATING THROUGH THE HIGH WINDS DIFFICULT...ESPECIALLY FOR HIGHER PROFILE VEHICLES.

HIGH WIND WARNING Issued 1244 PM CST TUE FEB 10 2009

SOUTH TO SOUTHWEST WINDS ARE FORECAST TO INCREASE LATE TONIGHT AND BECOME STRONG AND GUSTY WEDNESDAY. LATE TONIGHT...WINDS

INCREASE TO 15 TO 30 MPH WITH A FEW GUSTS UP TO 40 MPH AT TIMES.

IN ADDITION...THERE IS A SLIGHT RISK OF STRONG TO SEVERE THUNDERSTORMS ESPECIALLY LATE TONIGHT...WHICH MAY RESULT IN EVEN STRONGER WINDS AT TIMES.

A BAND OF STRONG TO POSSIBLY SEVERE STORMS WILL MOVE RAPIDLY NORTHEAST ACROSS THE REGION WEDNESDAY MORNING...THUS THE THREAT

FOR STRONG WIND GUSTS WILL CONTINUE. BEHIND THE SHOWERS AND STORMS...NON THUNDERSTORM GRADIENT WINDS ARE FORECAST TO INCREASE AND BECOME SOUTHWEST. SPEEDS OF 20 TO 40 MPH WITH **GUSTS TO 50 MPH ARE EXPECTED. THE WINDS SHOULD GRADUALLY** DIMINISH DURING THE MID TO LATE AFTERNOON HOURS.

THIS HIGH WIND WARNING IS IN EFFECT...BECAUSE OF THE HAZARDOUS CONDITIONS THAT MAY RESULT FROM THE EXPECTED STRONG AND GUSTY WINDS. THE RECENT ICE STORM THAT AFFECTED WESTERN KENTUCKY...AND PORTIONS OF FAR SOUTHERN ILLINOIS...SOUTHWEST INDIANA AND SOUTHEAST MISSOURI LEFT SOME TREES IN A WEAKENED STATE...WITH MANY LOOSE HANGING LIMBS AND BRANCHES. THE WINDS MAY RESULT IN NEW POWER OUTAGES FOR SOME AREAS...AND RESULT IN MINOR PROPERTY DAMAGE AS WELL. BE CAUTIOUS IF YOU MUST TRAVEL LATE TONIGHT INTO TOMORROW. LIMBS OR EVEN WEAKENED TREES COULD **COME DOWN ON AREA ROADWAYS.**

PUBLIC INFORMATION STATEMENT Issued 805 PM CST TUE FEB 10 2009

...STARTING LATE TONIGHT AND THROUGHOUT THE DAY ON WEDNESDAY...OUR REGION IS GOING TO BE FACED WITH A TRIPLE THREAT: SEVERE WEATHER...HIGH WINDS AND FLASH FLOODING..

HERE ARE A SOME TIPS TO CONSIDER:

* BE PREPARED FOR THE POSSIBILITY OF YOUR POWER GOING OUT AGAIN (OR STAYING OUT IF YOU ARE STILL WITHOUT POWER) AND BEING OUT FOR A LONG DURATION.

* MAKE SURE YOU HAVE FRESH BATTERIES FOR YOUR WEATHER RADIO (BATTERY BACKUP)...FLASHLIGHTS AND ALARM CLOCKS

* IF THE POWER GOES OUT...USE CAUTION WHEN USING CANDLES...PORTABLE HEATING UNITS...GENERATORS OR FIREPLACES.

* TREES WILL LIKELY BE TAKEN DOWN OR UPROOTED FROM THE WINDS AND MAY CAUSE NUMEROUS PROBLEMS...FROM LANDING ON POWER LINES AND ROADWAYS TO CAUSING STRUCTURAL DAMAGE.

* IF YOU HAVE ANY PRECARIOUS BRANCHES OR TREES IN DANGER OF FALLING ON PARTS OF YOUR HOME...TAKE PRECAUTIONS INSIDE TO PREVENT ANY INJURIES IF THESE BRANCHES OR TREES FALL ON YOUR HOME AND DO DAMAGE.

* SINCE HIGH WINDS WILL ALSO BE A PROBLEM AFTER ANY SEVERE WEATHER PASSES THROUGH...CLEAN UP CREWS AND POWER CREWS SHOULD BE ESPECIALLY CAUTIOUS OF ADDITIONAL TREES AND LIMBS FALLING DOWN AROUND THEM.

* DRIVERS SHOULD BE AWARE THAT TREES...LIMBS AND POWER LINES WILL LIKELY BE DOWN ACROSS ROADWAYS AND TO USE CAUTION WHILE DRIVING.

* DUE TO THE ALREADY SATURATED GROUNDS FROM THE RECENT ICE STORM...ALONG WITH THE RAIN THAT FELL LAST NIGHT AND INTO TODAY...ANY ADDITIONAL RAINFALL MAY CAUSE PROBLEMS WITH PONDING OF WATER ON ROADWAYS AND CREEKS AND STREAM BECOMING BANKFULL. IN ADDITION...DEBRIS LEFT OVER FROM THE RECENT ICE STORM MAY LEAD TO POOR DRAINAGE AND STANDING WATER IN AREAS NOT NORMALLY SUSCEPTIBLE TO STANDING WATER PROBLEMS.

*AS ALWAYS...KEEP POSTED ON THE LATEST WEATHER DEVELOPMENTS BY LISTENING TO NO A A WEATHER RADIO...COMMERCIAL TELEVISION AND RADIO.



New construction destroyed: Courtesy of WPSD Newschannel 6 (see chat below at 2012)

NWS

CHAT

Semi overturned: Courtesy of WPSD Newschannel 6



18:38 < nwsbot > Cairo [Alexander Co, IL] awos reports NON-TSTM WND GST of M55.00 MPH at 12:25 PM CST --18:42 < nwsbot > Paducah [Mccracken Co, KY] nws employee reports NON-TSTM WND DMG at 12:00 PM CST -- large pine tree uprooted

18:42 <em-beau.dodson> 992 mb over Central IL per SPC Mesoanalysis page 18:52 <em-beau.dodson> on and off 50+ mph gusts here in Lone Oak - continues at 1245 pm

18:55 <nws-pat.spoden> 55kt gust here at the office 18:56 <nws-pat.spoden> sustained 39 kts here at the office

18:56 <em-beau.dodson> impressive to say the least...seems like we have had a lot of wind events over the last few years

18:57 <em-beau.dodson> I would be happy if this was the last one for awhile :) These poor trees are hurting.

18:57 <nws-pat.spoden> we are losing some shingles at the office

18:59 <em-beau.dodson> Ouch, I can remember when you were in the trailer ove by the tower. High winds were never appreciated when you were at that

location. On and off power outages reported in McCracken County over the last two hours. Some near the mall. 19:00 < nwsbot > Paducah [Mccracken Co, KY] asos reports NON-TSTM WND GST of M63 MPH at

12:48 PM CST -- measured at the paducah asos. 19:00 < nwsbot > PADUCAH/BARKLEY,KY (PAH) ASOS reports gust of 55.0 knots from

WSW @ 1853Z KPAH 111853Z 24035G55KT 10SM BKN060 16/03 A2949 RMK AO2 PK WND 24055/1847 SLP985 T01560028

19:00 < nwsbot > NESDIS issues Satellite Precipitation Estimates

19:01 <nwsbot> PAH issues Areal Flood Warning for Bollinger [MO] till 4:00 PM CST 19:03 <em-beau.dodson> Lew Jetton reporting power off in portions of FultonCounty

19:03 <em-beau.dodson> at 1 PM

19:06 <em-beau.dodson> loud roaring noise can be heard here in Lone Oak -steady roar sounds right above the surface - have heard that noise before in some big wind events.

19:11 <em-beau.dodson> 12:30 PM - spotter reports 50 mph winds in Murray -reports of "limbs easily coming off of trees" while on the way to college (school)

20:02 < nwsbot > Hopkinsville [Christian Co, KY] trained spotter reports NON-TSTM WND GST of M52 MPH at 01:54 PM CST -

20:03 <nws-ricky.shanklin> Mark, thanks for offer, so far we are okay – on backup comms and generator, but are fully functional (except for 2 weather radio transmitters) at least for now. 20:04 <em-beau.dodson> very high winds here paducah

20:04 <em-beau.dodson> highest yet

20:04 <em-beau.dodson> estimate over 60 mph winds in lone oak at this time

20:04 <em-mark.garland> Rog, just holler if you need.

20:04 <nws-ricky.shanklin> Mark, You bet, thanks again.

20:05 <nws-ricky.shanklin> Power and utility poles falling in Mississippi co. MO

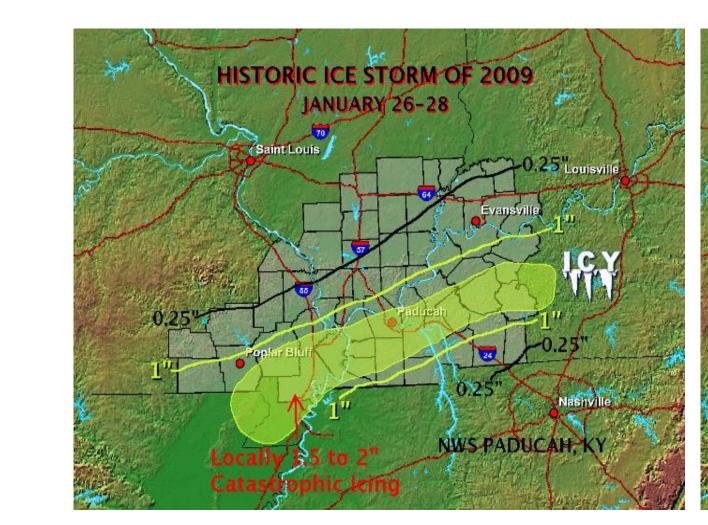
20:06 <nwsbot> Charleston [Mississippi Co, MO] emergency mngr reports NON-TSTM WND DMG at 02:05 PM CST -- numerous electical poles falling countywide.

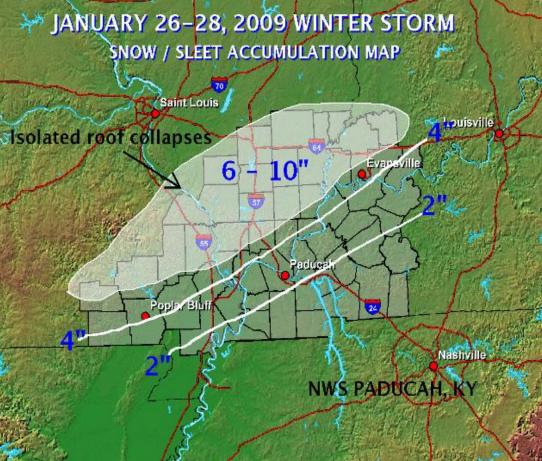
20:08 <nwsbot> Murray [Calloway Co, KY] emergency mngr reports NON-TSTM WND DMG at 02:05 PM CST -- portions of murray state university are being disrupted due to snapped power poles. 20:12 <em-beau.dodson> DES Report - McCracken County 115 PM - new construction building blown

down - building was framed up. Hope Road. 20:13 <em-beau.dodson> 12 NOON - Power Pole Blown Down - near EOC in McCracken County (Paducah) - pole and line down. Power outage for an hour+. Reported by DES.

20:14 <em-beau.dodson> 210 PM - Lone Oak - estimated winds of 55-60 mph 20:17 <nwsbot> Owensboro [Daviess Co, KY] emergency mngr reports HAIL of pea size (E0.25 INCH) at

02:10 PM CST -- reported at thurston and durmont road 20:17 <nwsbot> Paducah [Mccracken Co, KY] emergency mngr reports NON-TSTM WND DMG at 01:15 PM CST - new building under construction blown down on hope road. building was framed





The sensitivity and impact of this event were heightened due to the historic ice storm just a few weeks before.